REMARKS/ARGUMENTS

The Examiner is thanked for the review of the application and the telephone interview of February 24, 2006.

Claims 1-24 remain in this application. Claims 1, 5, 6, 8, 15-17 have been amended. Claim 18 has been cancelled without prejudice. No new matter has been added.

In the Office Action dated April 19, 2006, the Examiner has rejected Claims 1-24 under 35 U.S.C. 103(a) as being unpatentable over Cunningham et al. (US 6,029,139) in view of Dulaney et al. (US 6,341,269).

Regarding Claim 1, the Examiner has stated that "Cunningham et al. teaches an apparatus for creating a promotional event calendar, useful in association with at least one store, the apparatus comprising: an econometric engine for modeling sales as a function of price to create a sales model (See column 2, lines 65-column 3, line 3, column 5, lines 13-23, column 6, lines 1-20, column 8, lines 1-10, column 10, lines 55-65, which discusses modeling sales using price and sales information); a financial model engine for modeling costs to create a cost model (See column 5, lines 14-41, column 8, lines 1-12, column 10, lines 55-65, column 11, lines 65-column 12, line 5 and lines 45-52, which discusses modeling costs using cost data); a promotional engine coupled to the econometric engine, and financial model engine to receive input from the econometric engine and financial model engine, where the promotional engine analyzes a plurality of offers, a plurality of promotional events, conditions from at least one manufacturer, and constraints to optimally match offers with promotional events to create a promotional event calendar subject to conditions from the at least one store (See figure 2, column 2, lines 24-31, column 5, lines 13-42 and 59-65, column 11, lines 35-45 and 65-column 12, line 15 and lines 45-52, wherein an engine uses the output of the other engines to analyze and optimize promotional options to match offers and events (i.e. prices with displays, for example). This creates a schedule of events for future promotions. See column 2, lines 50-60, column 3, lines 1-5 and 15, column 10, lines 60-65, and column 12, lines 20-25, wherein conditions (i.e. sales, promotional participation, etc.) at the at least one store associated with a retailer is considered in the modeling

of a promotional event. See also column 2, lines 1-5 and 30-45, column 4, lines 60-67, column 6, lines 1-13, and column 10, lines 20-40 and 55-57, which discuss manufacturer conditions and user output constraints). However, while Cunningham et al. discloses receiving and analyzing constraints from a user and using linear programming, Cunningham et al. does not expressly disclose receiving and analyzing constraints the at least one store. Dulaney et al. discloses receiving and analyzing constraints the at least one store (See column 5, lines 59-65, column 6, lines 13-23, column 9, lines 50-60, column 10, lines 10-32, and column 16, lines 1-17, wherein constraints associated with the store are analyzed using linear/integer programming and constrained optimization) and promotion analysis (See column 18, lines 26-52). Both Cunningham et al. and Dulaney et al. discloses using constrained optimization (linear programming) to make decisions concerning a store and promotions. Cunningham et al. discloses interfacing with a user to set goals and constraints and elicit promotional cost information for the system. Dulaney et al. specifically discloses constraints related to the store, such as capacity constraints concerning shelves and facings. It would have been obvious to one of ordinary skill in the art at the time of the invention to make the user input constraints of Cunningham et al. be constraints related to the store in order to more efficiently select the best promotions for the store based on quantifiable inputs by the user, such as price, volume, or profit, by using constraints concerning the store that will affect the minimization of cost. See column 5, lines 50-55, of Cunningham et al. which discloses this motivation."

Claim 1 as amended now recites "wherein the constraints from the at least one store includes a <u>linear constraint and a nonlinear constraint</u>" (emphasis added). Support can be found in the Applicants' Specification on page 108, line 13 to page 109, line 6:

> "The optimization problem **P2** has the following features: the objective and the group sales equations are **nonlinear**, while the rest of the **constraints are linear.** In the preferred embodiment, a heuristic approach is used to generate a good feasible starting point for the problem, if one exists. The heuristic works by repeatedly solving a related problem involving all the linear constraints 4-8, a set of linear constraints that approximate the group price advance and decline constraints (3), and an objective that involves the marginal contribution to profit of each product." (Emphasis added)

Base Claim 1 and dependent Claims 2-4, 9, 10, 15, 19, 20 are all allowable because none of the cited references Cunningham and Dulaney discloses or suggests using a combination of linear and nonlinear constraints from the at least one store to optimally match offers with

promotional events to create a promotional event calendar subject to the conditions from the at least one store. The Examiner's rejection of Claim 1 is now moot.

Regarding Claim 2, the Examiner has stated that "Cunningham et al. discloses wherein the promotional engine further comprises a temporary price reduction optimizing engine for optimizing temporary price reduction prices after the promotional events and offers have been selected (See column 8, lines 1-11, column 11, lines 35-42 and line 65-column 12, line 12 and lines 45-55, wherein a temporary price reduction is considered by the promotional engine)."

Regarding Claim 3, the Examiner has stated that "Cunningham et al. teaches a promotional engine and outputting the optimized selection, as well as a client/personal computer (See figure 1, column 1, line 64-column 2, line 7, column 5, lines 14-45, column 11, lines 65-column 12, line 5 and lines 45-55). However, Cunningham et al. does not expressly discloses, nor does Dulaney et al., a support tool per se connected to the promotional engine that receives the promotional event calendar from the promotional engine and provides a user interface with the promotional event calendar to a client. Cunningham discloses a system with client/server architecture and models that optimize promotional planning to create the output of promotional events and offers. Using a user interface to more efficiently display output to a user (or client) of a system is old and well known in the computer arts. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to display the output and optimized results to the user of the system in order to more efficiently communicate the results to the user for whom the analysis was performed. See column 2, lines 24-31, which discusses creating a plan to better meet the user's goals and figure 1 and column 1, lines 64-column 2, line 7, which discuss a personal computer connected to the system."

Regarding Claim 4, the Examiner has stated that "Cunningham et al. discloses wherein the promotional engine calculates the value of offers and the value of promotional events by using the financial model and sales model and selects combinations of the offers and the promotional events (See column 2, lines 24-31, column 5, lines 13-42 and 59-65, column 11, lines 35-45 and 65-column 12, line 15 and lines 45-52, wherein the promotion engine uses outputs of the financial and sales models to determine offer and promotion events)."

Claims 2-4 are allowable for at least the same reasons Claim 1 is allowable and hence the Examiner's rejection of Claim 2-4 is now moot.

Regarding Claim 5, the Examiner has stated that "Cunningham et al. discloses a computer-implemented method for creating a promotional event calendar, comprising: creating a sales model (See column 2, lines 65-column 3, line 3, column 5, lines 13-23, column 6, lines 1-20, column 8, lines 1-10, column 10, lines 55-65, which discuss a sales model created in the system that considers sales data); creating a cost model (See column 2, lines 45-52, column 5, lines 13-20 and 59-column 6, line 25, wherein a cost model is creating in the system and considers cost data); determining conditions from at least one manufacturer (See column 4, lines 60-67, column 6, lines 1-13, and column 10, lines 20-40 and 55-57, which discuss manufacturer conditions); determining user input constraints (See column 2, lines 1-5 and 30-45, which discuss user input constraints); determining the value of offers using the sales model and cost model (See column 5, lines 14-41, column 8, lines 1-12, column 10, lines 55-65, column 11, lines 65-column 12, line 5 and lines 45-52, which discuss determining the value of offers using the models); determining the value of promotional events using the sales model and cost model (See column 5, lines 25-41, column 6, lines 10-12, column 11, lines 65-column 12, line 5 and lines 45-52, which discusses the value of promotional events); and selecting combinations of the offers and promotional events based on the determined values to create a promotional event calendar subject to the conditions from the at least one manufacturer and constraints from the user (See column 1, lines 59-63, column 2, lines 24-31, column 5, lines 25-41, column 11, lines 65-column 12, line 5 and lines 45-52, wherein the combination of offers and promotional events are selected based on determined values. See column 2, lines 50-60, column 3, lines 1-5 and 15, column 10, lines 60-65, and column 12, lines 20-25, wherein conditions related to a store are considered in the modeling of a promotional event. See also column 2, lines 1-5 and 30-45, column 4, lines 60-67, column 6, lines 1-13, and column 10, lines 20-40 and 55-57, which discuss manufacturer conditions and user input constraints). However, while Cunningham et al. discloses receiving and analyzing constraints from a user and using linear programming, Cunningham et al. does not expressly disclose receiving and analyzing constraints the at least one store. Dulaney et al. discloses receiving and analyzing constraints the at least one store (See column 5, lines 59-65, column 6, lines 13-23, column 9, lines 50-60, column 10, lines 10-32, and column 16, lines 1-17, wherein constraints associated with the store are analyzed using linear/integer programming and constrained optimization) and promotion analysis (See column 18, lines 26-52). Both Column et al. and Dulaney et al. discloses using constrained optimization (linear programming) to make decisions concerning a store and promotions. Cunningham et al.

discloses interfacing with a user to set goals and constraints and elicit promotional cost information for the system. Dulaney et al. specifically discloses constraints related to the store, such as capacity constraints concerning shelves and facings. It would have been obvious to one of ordinary skill in the art at the time of the invention to make the use input constraints of Cunningham et al. be constraints related to the store in order to more efficiently select the best promotions for the store based on quantifiable inputs by the user, such as price, volume, or profit, by using constraints concerning the store that will affect the minimization of cost. See column 5, lines 50-55, of Cunningham et al. which discloses this motivation."

Claim 5 as amended also recites "wherein the constraints from the at least one store includes a linear constraint and a nonlinear constraint" (emphasis added). Support can be found in the Applicants' Specification on page 108, line 13 to page 109, line 6.

Accordingly, the Examiner's rejection of base Claim 5 is moot, and Claim 5 and dependent Claims 6, 7, 11, 12, 16, 21, 22 are all allowable because Cunningham and Dulaney do not disclose or suggest selecting combinations of the offers and promotional events based on the determined values to create a promotion event calendar subject to the conditions from the at least one manufacturer, and subject to linear and nonlinear constraints from the at least one store.

Regarding Claim 6, the Examiner has stated that "Cunningham et al. wherein the creating of the sales model comprises: creating a plurality of demand groups, wherein each demand group is a set of at least one product and wherein at least one of the demand groups is a set of at least two products (See column 2, lines 25-35, column 4, line 61-column 5, lines 8, column 6, lines 22-40 and 50-62, which discusses demand groups wherein a demand group is one product or more than one product, such as segment or brand family); creating a sales model for each demand group (See column 2, lines 25-35, column 4, line 61-column 5, lines 8, column 6, lines 22-40 and 50-62, wherein sales data is obtained and modeled for a demand group); and creating a market share model for each product in each demand group (See column 2, lines 45-57, column 4, line 61-column 5, line 12, column 6, lines 22-40 and 50-65, wherein a model is created concerning the market of the demand group)."

Amended Claim 6 recites "creating a plurality of demand groups, wherein each demand group is a set of at least one product and wherein at least one of the demand groups is a set of at

least two substitutable products, and wherein the creation of the plurality of demand groups includes error detection and correction based on attributes of the plurality of demand groups" (emphasis added). Support can be found in Applicants' specification on page 14, line 10 to page 15, line 11:

> "The process of dataset creation and cleaning (that is to say the process of identifying incompatible data records and resolving the data incompatibility, also referred to herein as "error detection and correction") begins by inputting raw econometric data (Step 1011). The raw econometric data is then subject to formatting and classifying by UPC designation (Step 1013). After formatting, the data is subject an initial error detection and correction step (Step 1015). Once the econometric data has been corrected, the store information comprising part of the raw econometric data is used in defining a store data set hierarchy (Step 1017). This is followed by a second error detecting and correcting step (Step 1019). This is followed by defining a group of products which will comprise a demand group (i.e., a group of highly substitutable products) and be used for generating attribute information (Step 1021). Based on the defined demand group, the attribute information is updated (Step 1023). The data is equivalized and the demand group is further classified in accordance with size parameters (Step 1025). The demand group information is subjected to a third error detection and correction step (Step 1027). The demand group information is then manipulated to facilitate decreased process time (Step 1029). The data is then subjected to a fourth error detection and correction step (Step 1031), which generates an initial cleansed dataset. Using this initial cleansed dataset, imputed econometric variables are generated (Step 1033). Optionally, these imputed econometric variables may be output to other systems for further processing and analysis (Step 1035)." (Emphasis added).

Hence Claim 6 is allowable because none of the cited references disclose the creation of demand groups based on "substitutable products, and wherein the creation of the plurality of demand groups includes error detection and correction based on attributes of the plurality of demand groups".

Regarding Claim 7, the Examiner has stated that "Cunningham et al. discloses the step of estimating net profit from the selected combination of offers and promotional events using the sales model and cost model (See column 5, lines 30-56, column 6, lines 1-22, wherein the net

profit is estimated by using optimization, the sales and cost models)." The Examiner's rejection is now moot because Claim 7, which is dependent on Claim 6, is also allowable for at least the same reasons discussed above for Claims 5 and 6.

Regarding Claim 8, the Examiner has stated that "Claim 8 recites equivalent limitations to claims 5-7 above and is therefore rejected using the same art and rationale applied above."

Claim 8 as amended also recites "wherein the constraints from the at least one store includes a linear constraint and a nonlinear constraint." Support can be found in the Applicants' Specification on page 108, line 13 to page 109, line 6.

Accordingly, base Claim 8 and dependent Claims 13, 14, 17, 23, 24 are all allowable because none of the cited references disclose or suggest selecting combinations of offers and promotional events based on the determined values to create a promotion event calendar subject to the conditions from the at least one manufacturer, and subject to linear and nonlinear constraints from the at least one store. The Examiner's rejection of Claim 8 is also moot.

Regarding Claim 9, the Examiner has stated that "Cunningham et al. discloses determining user input constraints (See column 2, lines 1-5 and 30-45, which discuss user input constraints). However, while Cunningham et al. discloses receiving and analyzing constraints from a user and using linear programming, Cunningham et al. does not expressly disclose receiving and analyzing constraints the at least one store. Dulaney et al. discloses store constraints, where the store constraints include display space capacity (See figure 1, column 5, lines 59-65, column 6, lines 13-23, column 10, lines 1-32, and column 16, lines 1-17, wherein constraints associated with the store are analyzed using linear/integer programming and constrained optimization. The constraints include facing and shelf constraints). Both Cunningham et al. and Dulaney et al. discloses using constrained optimization (linear programming) to make decisions concerning a store and promotions. Cunningham et al. discloses interfacing with a user to set goals and constraints and elicit promotional cost information for the system. Dulaney et al. specifically discloses constraints related to the store, such as capacity constraints concerning shelves and facings. It would have been obvious to one of ordinary skill in the art at the time of the invention to make the user input constraints of Cunningham et al. be constraints related to the store, such as display space, in order to more efficiently select the best promotions for the store based on quantifiable inputs by the user, such

as price, volume, or profit, by using constraints concerning the store that will affect the minimization of cost. See column 5, lines 50-55, of Cunningham et al. which discloses this motivation."

Regarding Claim 10, the Examiner has stated that "Cunningham et al. discloses determining user input constraints (See column 2, lines 1-5 and 30-45, which discuss user input constraints). However, while Cunningham et al. discloses receiving and analyzing constraints from a user and using linear programming, Cunningham et al. does not expressly disclose receiving and analyzing constraints the at least one store. Dulaney et al. discloses store constraints, where the store constraints includes at least one of an event type (See column 18, lines 28-53, which discusses promotions/seasonal events). Both Cunningham et al. and Dulaney et al. discloses using constrained optimization (linear programming) to make decisions concerning a store and promotions. Cunningham et al. discloses interfacing with a user to set goals and constraints and elicit promotional cost information for the system. Dulaney et al. specifically discloses constraints related to the store, such as capacity constraints concerning shelves and facings. It would have been obvious to one of ordinary skill in the art at the time of the invention to make the user input constraints of Cunningham et al. be constraints related to the store, such as event types, in order to more efficiently select the best promotions for the store based on quantifiable inputs by the user, such as price, volume, or profit, by using constraints concerning the store that will affect the minimization of cost. See column 5, lines 50-55, of Cunningham et al. which discloses this motivation." The Examiner has also rejected Claims 11-12 and 13-14 stating that they "recite equivalent limitations to claims 9-10, respectively, and are therefore rejected using the same art and rationale applied above."

The Examiner's rejection of Claims 9-14 is now moot because Claims 9-14 are dependent on their respective allowable base Claims 1, 5, 8, which are now also allowable for at least the same reasons discussed above for Claims 1, 5, 8.

Regarding Claim 15, the Examiner has stated that "Cunningham teaches wherein the matching of offers with promotional events involves solving a linear optimization problem (See column 5, lines 25-45 and 50-56, wherein a linear optimization problem is solved to optimize the promotional plans). However, Cunningham et al. does not expressly disclose that the linear optimization problem is specifically an integer problem. Dulaney et al. discloses an integer problem as a type of constrained optimization within linear programming (See column 16, lines

1-17). Cunningham et al. discloses using linear optimization to find the best promotions based on volume, price, profit, etc. goals. Using integer programming when some variables of the problem need to be integer values is old and well-known in operations research, as discussed by Dulaney et al. Cunningham et al. discloses the variable of volume, for example, where the number of products must be an integer value. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to use an integer problem in the linear optimization performed by Cunningham et al. in order to more efficiently select the best promotions at the least cost in a problem involving inputs that have integer values. See column 5, lines 50-55, of Cunningham et al. which discloses this motivation." The Examiner has rejected Claims 16 and 17 stating that they "recite equivalent limitations to claim 15 and are therefore rejected using the same art and rationale applied above."

Claims 15-17 now all recite "solving an integer problem using the linear constraint and the nonlinear constraint." (emphasis added). Support can be found on page 132, line 8 to page 133, line 2 of Applicants' specification. Accordingly, Claims 15-17 are allowable because the cited references do not disclose such a limitation. In addition, Claims 15-17, which are dependent on their respective allowable base Claims 1, 5, 8, are also allowable for at least the same reasons discussed above for Claims 1, 5, 8. The Examiner's rejection of Claims 15-17 is now moot.

Regarding Claim 18, the Examiner has stated that "Cunningham et al. discloses wherein the plurality of demand groups include a set of substitutable products (See column 2, lines 25-35, column 4, line 61-column 5, lines 8, column 6, lines 22-40 and 50-62, which discusses demand groups wherein a demand group is more than one product, such as segment or brand family. A segment is a product type, such as tea bags, wherein teabags of different manufacturers would be substitutes)." Claim 18 has now been cancelled without prejudice.

Regarding Claims 19, 21, and 23, the Examiner has stated that "Cunningham et al. teaches wherein the conditions from the at least one manufacturer include providing at least one of a promotional event and a specific amount of promotion (See column 2, lines 1-5 and 30-45, column 4, lines 60-67, column 6, lines 1-13, and column 10, lines 20-40 and 55-57, which discuss manufacturer conditions, such as role in promotions)."

Regarding Claims 20, 22, and 24, the Examiner has stated that "Cunningham et al. teaches wherein the conditions from the at least one manufacturer include if a manufacturer is providing goods or products for a competitor (see Column 2, lines 1-5 and 30-45, column 4, lines 60-67, column 6, lines 1-13, and column 10, lines 20-40 and 55-57, which discuss manufacturer conditions, such as role in promotions). However, neither Cunningham et al. or Delaney et al. disclose that the manufacturer conditions include not providing a promotional event for a competitor's product. Cunningham et al. discloses taking into consideration actions of competitor manufacturers when planning a promotion. When there is no competitor action, it would not be considered and thus not affect the planning of Cunningham et al. Therefore, it would have been obvious to one of ordinary skill in the art at the time of the invention to consider a manufacturer not providing a promotional event for a competitor's product in the planning of Cunningham et al. in order to more efficiently select the best promotions for the store based on quantifiable inputs by the user by using considering all variables that will affect the minimization of cost. See column 5, lines 50-55, of Cunningham et al. which discloses this motivation."

The Examiner's rejection of Claims 19-24 is moot because Claims 19-24, which are dependent on their respective allowable base Claims 1, 5, 8, are now also allowable for at least the same reasons discussed above for Claims 1, 5, 8.

In sum, base Claims 1, 5, 8, have been amended and are believed to be allowable. Dependent claims 6, 15-17 have been amended and is also believed to be allowable. Dependent claims 2-4, 6, 7, 9-17, 19-24 which depend therefrom are also believed to be allowable as being dependent from their respective patentable parent claims 1, 5, 8 for at least the same reasons. Hence, Examiner's rejection of base Claims 1, 5, 8 and dependent Claims 2-4, 6, 7, 9-17, 19-24 are rendered moot in view of the amendment to independent Claims 1, 5, 8.

Applicants believe that all pending Claims 1-17, 19-24 are now allowable over the cited art and are also in allowable form and respectfully request a Notice of Allowance for this application from the Examiner. Applicants also enclose our Credit Card Payment Form authorizing the amount of $1020.00 to cover the three-month extension of time fee. The commissioner is authorized to charge any additional fees that may be due to our Deposit Account No. 50-2766 (Order No. DEMIP006). Should the Examiner believe that a telephone conference would expedite the prosecution of this application, the undersigned can be reached at telephone number 925-570-8198.

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